

## **AMENDMENTS TO THE CLAIMS**

The following listing of claims will replace all prior versions and listings of claims in the application.

### **LISTING OF CLAIMS**

1. (currently amended) A method for isolating faults in an optical path of an optical network having a plurality of partial regenerators, comprising:

transmitting an optical signal through the optical network, the optical signal having error detection data embedded therein;

determining an error rate for the optical signal at an egress point of the optical network, where the error rate is based on the error detection data embedded in the optical signal;

dithering the optical signal distinctly at two or more of the plurality of partial regenerators subsequent to determining an error rate at an egress point, where the optical signal is dithered by varying an amplitude of the optical signal using the partial regenerators ~~at two or more of said plurality of partial regenerators~~; and

monitoring the error rate for the dithered optical signal at the egress point of the optical network in order to isolate; ~~thereby isolating~~ where a fault occurs in the optical network.

2. (original) The method of Claim 1 wherein the step of transmitting an optical signal further comprises embedding error detection data in B1 byte of a data frame in accordance with SONET protocol.

3. (original) The method of Claim 1 wherein the step of determining an error rate further comprises calculating Q for the optical signal at the egress point of the optical network.

4. (original) The method of Claim 1 wherein the step of determining an error rate further comprises deriving the error rate from the number of corrected errors in a forward error correction scheme.

5. (currently amended) The method of Claim 1 further comprises dithering the optical signal at a transmitter subsequent to determining an error rate at an egress point and prior to dithering the optical signal distinctly at two or more of the plurality of partial regenerators ~~wherein introducing a dither control signal further comprises introducing the dither control signal at a transmitter in the optical path, thereby assessing if a fault exists downstream from the transmitter.~~

6. (currently amended) The method of Claim 1 wherein the step of dithering the optical signal distinctly at two or more of the plurality of partial regenerators further comprises distinctly dithering the optical signal ~~introducing a dither control signal further comprises sequentially introducing the dither control signal at each of said plurality of partial regenerators, thereby assessing if a fault exists downstream from a given partial regenerator.~~

7. (currently amended) The method of Claim 1 wherein the steps of dithering the optical signal distinctly at two or more of the plurality of partial regenerators ~~introducing a dither control signal~~ and monitoring the error rate for the optical signal are performed only when the error rate for the optical signal exceeds a predetermined threshold error rate indicative of a fault in the optical network.

8. (currently amended) A method for isolating faults in an optical path of an optical network having a plurality of partial regenerators, comprising:

transmitting an optical signal through the optical network;

determining a baseline error rate for the optical signal at an egress point of the optical network;

dithering the optical signal by varying an amplitude of the optical signal using at a first partial regenerator ~~after determining a baseline error rate~~;

determining a first error rate for the dithered optical signal at the egress point of the optical network; and

evaluating the first error rate in relation to the baseline error rate to assess, ~~thereby assessing~~ if a fault exists downstream from the first partial regenerator.

9. (currently amended) The method of Claim 8 further comprising the steps of:

dithering the optical signal at a transmitter residing in the optical path after determining a baseline error rate and prior to dithering the optical signal using the first partial regenerator;

determining a second ~~first~~ error rate for the optical signal at the egress point of the optical network after dithering the optical signal at the transmitter and prior to dithering the optical signal using the first partial regenerator; and

evaluating the second ~~first~~ error rate in relation to the baseline error rate, thereby assessing if a fault exists downstream from the transmitter.

10. (currently amended) The method of Claim 8 further comprises the steps of:

(a) dithering the optical signal by varying the amplitude of the optical signal using at a second partial regenerator located downstream from the first partial regenerator and after determining a first error rate;

(b) determining a second error rate for the optical signal at the egress point of the optical network after dithering the optical signal at the second partial regenerator; and

(c) evaluating the second error rate in relation to the baseline error rate to assess, ~~thereby assessing~~ if a fault exists downstream from the second partial regenerator.

11. (original) The method of Claim 10 further comprises repeating steps (a) thru (c) for each of said plurality of partial regenerators in the optical network.

12. (new) The method of Claim 10 further comprises discontinuing dithering the optical signal using the first partial regenerator prior to dithering the optical signal using the second partial regenerator.